

## SAFETY DATA SHEET Thermochromic Water Based Screen Ink

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MSDS011 Revision 3  
Revision Date 06/15/2015

### 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Product name</b>	Thermochromic Water Based Screen Ink		
<b>Additional Names</b>	None		
<b>Description</b>	Temperature Sensitive color change ink.		
<b>Intended Use</b>	Manufacture of temperature indicating devices		
<b>Company</b>	LCR Hallcrest 1911 Pickwick Lane Glenview IL 60026 USA		
<b>Web</b>	<a href="http://www.hallcrest.com">www.hallcrest.com</a>		
<b>Telephone</b>	+1 847 998 8580		
<b>Fax</b>	+1 847 998 6866		
<b>Email</b>	<a href="mailto:sales@hallcrest.com">sales@hallcrest.com</a>		
<b>Emergency telephone number</b>	Chemtel	Domestic: 800-255-3924	Intl: +01-813-248-0585

### 2. HAZARDS IDENTIFICATION.

<b>GHS Classification</b>	Skin Sens. 1: H317 - May cause an allergic skin reaction. Eye Dam. 1: H318 - Causes serious eye damage. Carcinogen 1B: H350 – May cause cancer. Repro. Tox. 2: H361 – Suspected of damaging fertility or the unborn child
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#### GHS Label Elements Pictograms



<b>Signal Word</b>	Danger
<b>Hazard Statements</b>	Skin Sens. 1: H317 - May cause an allergic skin reaction. Eye Dam. 1: H318 - Causes serious eye damage. Carcinogen 1B: H350 – May cause cancer Repro. Tox. 2: H361 – Suspected of damaging fertility or the unborn child

**Precautionary Statement**

P201 – Obtain special instructions before use  
 P202: Do not handle until all safety precautions have been read and understood.  
 P261: Avoid breathing dust/fumes/gas/mist/vapours/spray.  
 P272: Contaminated work clothing should not be allowed out of the workplace.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection.  
 P281 – Use personal protective equipment as required.  
 P302+P352: IF ON SKIN: Wash with plenty of water  
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. continue rinsing.  
 P308 + P313: IF exposed or concerned: Get medical advice/attention.  
 P310: Immediately call a POISON CENTER/doctor  
 P321: Specific treatment (see ... on this label)  
 P333+P313 - If skin irritation or a rash occurs: Get medical advice/attention.  
 P363 - Wash contaminated clothing before reuse.  
 P405 - Store locked up.  
 P501 – Dispose of contents/container according to appropriate regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS.			
Hazardous ingredients	Classification	Conc.	CAS
Formaldehyde	Flam. Liq. 4; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Skin Sens. 1; Muta. 2; Carc. 1A; Quatic Acute 3; H227, H301+H311_H331, H314, H317, H318, H341, H350, H402	<0.5%	50-0-0
4,4'-Isopropylidenediphenol	Repr. 2: H361f; STOT SE 3: H335; Eye Dam. 1: H318; Skin Sens. 1: H317;	1-5%	80-05-7

**4. FIRST AID MEASURES**

**Description of first aid measures**

**Skin contact** Irritating to skin. Wash off immediately with plenty of soap and water. Remove contaminated clothing. Seek medical attention if irritation or symptoms persist.

**Eye contact** Irritating to eyes. Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Seek medical attention if irritation or symptoms persist.

**Inhalation** Irritating to respiratory system. Inhalation may cause coughing, tightness of the chest and irritation of the respiratory system. Move the exposed person to fresh air. Seek medical attention.

**Ingestion** Ingestion may cause nausea and vomiting. Seek medical attention if irritation or symptoms persist. DO NOT INDUCE VOMITING.

**Most important symptoms and effect, both acute or delayed.**

**Skin contact** Avoid contact with skin. Irritating to skin.

**Eye contact** Irritating to eyes.

**Inhalation** Irritant, moderate respiratory.

**Ingestion** Ingestion may cause nausea and vomiting.

**Indication of any immediate medical attention and special treatment needed**

**Skin contact** May cause sensitization by skin contact. Wash off immediately with plenty of soap and water.

**Eye contact** Seek medical attention if irritation or symptoms persist.

**Inhalation** Coughing, difficulty in breathing. If breathing is difficult give oxygen.

**5. FIRE FIGHTING MEASURES**

**Extinguishing Media** Use as appropriate: carbon dioxide (CO2), dry chemical, foam, water spray.

**Specific hazards arising from the chemical** Burning produces irritating, toxic and obnoxious fumes.

**Special protective actions for fire-fighters** Use self-contained breathing apparatus and protective clothing.

**6. ACCIDENTAL RELEASE MEASURES**

- Personal Precautions, protective equipment and emergency procedures** Ensure adequate ventilation of the working area. Wear suitable protective equipment.
- Environmental Precautions** Do not allow product to enter drains. Prevent further spillage if safe.
- Methods and material for containment and cleaning up** Absorb with inert, absorbent material. Sweep up. Transfer to suitable, labelled containers for disposal. Clean spillage area thoroughly with plenty of water.

**7. HANDLING AND STORAGE**

- Individual protection measures** Avoid contact with eyes and skin. Ensure adequate ventilation of the working area. Adopt best Manual Handling considerations when handling, carrying and dispensing
- Conditions for safe storage, including incompatibilities:** Keep in a cool, dry, well ventilated area. Keep containers tightly closed. Store in correctly labelled containers.
- Specific end uses:** Keep away from sources of ignition – No smoking
- Further Information:** Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Exposure Limits**

Formaldehyde	<b>WEL 15 min limit ppm: 2</b> <b>WEL 8-hr limit mg/m3 total - inhalable dust:</b> <b>WEL 8-hr limit mg/m3 total - respirable dust:</b>	<b>WEL 15 min limit mg/m3: 2.5</b> <b>WEL 15 min limit mg/m3 total - inhalable dust:</b> <b>WEL 15 min limit mg/m3 total - respirable dust:</b>
4,4'-Isopropylidenediphenol	<b>WEL 8-hr limit ppm: -</b> <b>WEL 15 min limit ppm: -</b> <b>WEL 8-hr limit mg/m3 total inhalable dust:-</b> <b>WEL 8-hr limit mg/m3 total respirable dust:-</b>	<b>WEL 8-hr limit mg/m3: 10</b> <b>WEL 15 min limit mg/m3: -</b> <b>WEL 15 min limit mg/m3 total inhalable dust:-</b> <b>WEL 15 min limit mg/m3 total respirable dust:-</b>

**Control Parameters**

**Individual Protection Measures**

- Individual protection measures** Wear chemical protective clothing.
- Eye/face protection** Approved safety goggles
- Skin protection – Hand protection** Chemical resistant gloves (PVC).
- Respiratory protection** Wear:. Suitable respiratory equipment.
- Environmental Exposure Controls** Appropriate local exhaust ventilation is required.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	Liquid
<b>Colors</b>	Various colors according to type
<b>Odor</b>	Characteristic
<b>Odor threshold</b>	N/A
<b>pH</b>	5-5.5
<b>Melting Point/Freezing Point</b>	Starts at 100°C
<b>Initial Boiling Point and Boiling Range</b>	No testing available.
<b>Flash Point</b>	No testing available.
<b>Evaporation rate</b>	No testing available.

<b>Flammability</b>	No testing available.
<b>Upper/Lower Flammability or Explosive Limits</b>	No testing available.
<b>Vapor Pressure</b>	No testing available.
<b>Solubility</b>	Miscible in water.
<b>% Volatiles (by volume)</b>	N/M – tested according to EPA test method 24.
<b>Viscosity</b>	300-1500 cps

**10. STABILITY AND REACTIVITY**

<b>Reactivity</b>	No data available
<b>Chemical Stability</b>	Stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No significant hazard
<b>Conditions to avoid</b>	Protect from frost.
<b>Incompatible materials</b>	Alkalis
<b>Hazardous Decomposition Products</b>	Formaldehyde may be generated and other harmful fumes.

**11. TOXICOLOGICAL INFORMATION**

<b>Toxilogical Information</b>		
<b>Formaldehyde</b>	Inhalation Rat LC50/2H h: 250 ppm Oral Mouse LD50: 500 mg/kg Dermal Rabbit LD50: 270 mg/kg	Oral Rat LD50: 500 mg/kg Inhalation Mouse LC50/2H h: 505 mg/m3
<b>4,4'-Isopropylidenediphenol</b>	Oral Rat LD50: 4240 mg/kg Dermal Rabbit LD50: 3 mL/kg	Oral Mouse LD50: 2500 mg/kg

**Skin corrosion/irritation** No test data available

**Serious eye damage/irritation** No test data available

**Respiratory or skin sensitization** No test data available

**Germ cell mutagenicity** No test data available

**Carcinogenicity** No test data available

**Reproductive toxicity** No test data available

**STOT-single exposure** No test data available

**STOT-repeat exposure** No test data available

**Aspiration hazard** No test data available

**Likely routes to exposure**

**12. ECOLOGICAL INFORMATION**

<b>Toxicity</b>	<b>Formaldehyde</b>	<b>Daphnia 1 EC50 – 54mg/l</b>
	<b>4,4'-Isopropylidenediphenol</b>	<b>Green algae EC50/96h: 3.1</b> <b>Fathead minnows LC50/96h: 4.6</b> <b>Daphnia LC50/48h: 10.2</b>
<b>Persistence and degradability</b>	No data available	
<b>Bioaccumulative potential</b>	No data available	
<b>Mobility in soil</b>	No data available	
<b>Other adverse effects</b>	No data available	

**13. DISPOSAL CONSIDERATIONS**

<b>Waste Treatment Methods</b>	Absorb with inert, absorbent material.
<b>General Information</b>	Dispose of in compliance with all local and national regulations.
<b>Disposal Methods</b>	Do not empty into drains; dispose of this material and its container in a safe way.

**14. TRANSPORT INFORMATION**

<b>UN Number</b>	This product is not classified as dangerous for carriage.
<b>UN Proper Shipping Name</b>	This product is not classified as dangerous for carriage.
<b>Transport Hazard class(es)</b>	This product is not classified as dangerous for carriage.
<b>Packing Group (if applicable)</b>	This product is not classified as dangerous for carriage.
<b>Environmental Hazards</b>	This product is not classified as dangerous for carriage.
<b>Special Precautions for the User</b>	This product is not classified as dangerous for carriage.
<b>DOT</b>	This product is not classified as dangerous for carriage.
<b>IMDG</b>	This product is not classified as dangerous for carriage.
<b>IATA</b>	This product is not classified as dangerous for carriage.

**Further Information**

**Further information**

The product is not classified as dangerous for carriage.

15. REGULATORY INFORMATION									
Ingredient	TSCA	MA	SARA313	CALPROP65	CWA307	CAA112	CWA311	SARA302	SARA304
Formaldehyde	Y	Y	Y0.1	Y	N	Y	Y	Y 500	Y 100
4,4'-Isopropylidenediphenol	Y	Y	Y1.0	N	N	N	N	N	N

**16. OTHER INFORMATION**

**Revision** Revision 3: Major revision to include the requirements of the HCS/HazCom 2012 Final Rule.

**Further information** The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.

**HMIS LABELLING** HEALTH 1, FLAMMABILITY 0, PHYSICAL HAZARD 0,